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TWELVE-LEAD ECG PATTERNS FAIL TO IDENTIFY AN EPICARDIAL ORIGIN FOR LEFT VENTRICULAR TACHYCARDIA IN POST-INFARCTION PATIENTS

ACC Poster Contributions
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BACKGROUND Several ECG features have been reported to identify epicardial origins for left ventricular tachycardias (LV-VTs) in the absence of myocardial infarction. Only limited data exist in post-infarction patients. We tested proposed algorithms for non-ischemic tachycardias for their ability to identify epicardial LV-VT origins.

METHODS The QRS features of 17 successful epicardial and 29 endocardial RBBB LV-VTs were retrospectively reviewed by four independent electrophysiologists and analyzed for various 12-lead ECG features.

RESULTS All 12-lead ECG features proposed for non-ischemic LV-VTs were unable to consistently predict an epicardial LV-VT origin in infarct-related tachycardias. QRS duration was 199±31ms in epicardial vs. 178±40ms in endocardial LV-VTs (p=0.063) showing significant overlap and therefore lacking a reasonable cutoff-value between epicardial and endocardial LV-VTs. Pseudo-delta duration was 47±9 vs. 54±21ms (p=ns), intrinsicoid deflection time was 103±32 vs. 92±24ms (p=ns), shortest RS was 110± 36 vs. 101±34ms (p=ns) and median deflection index was 0.75±0.27 vs. 0.85±0.25ms (p=ns).

The finding of a Q wave in lead I and absence of a Q wave in the inferior leads failed to predict an epicardial origin in superior LV-VT sites. Q waves in any inferior lead as well as an aVR/aVL ratio < 1 were not specific for an epicardial origin in inferior sites (all p=ns). Furthermore, most inferior LV-VTs showed a Q wave in the inferior leads which correlated with pre-existing Q-waves in sinus rhythm ECGs (p=0.045) rendering this ECG feature not useful.

CONCLUSION Proposed 12-lead ECG algorithms for the differentiation of epicardial vs. endocardial sites for non-ischemic LV-VTs are not valid in post-infarction patients.